“It was an unexpected wind event.”

Managing the Unexpected in Fire-Use Operations

Quiz

1 Will never happen.

2 Will rarely happen.

3 Will likely happen.

4 Very likely to happen.

5 It’s inevitable.

Context & Background

Technological Cure

Our History

high mountain meadows.' I thought this good advice because I knew something about the controversy surrounding fire and figured that I would be continually hampered if I got involved."[3]

This was the same Kotok, of course, who, with his brother-in-law S. B. Show, tamped out the light-burning debates in California and helped shape fire control policy afterward. Kotok had been Biswell's supervisor during his first years of research work with the Forest Service in California.

In 1945 the California legislature authorized the Division of Forestry to issue controlled burning permits for brush-range improvement, which led to funding for university research into the use of fire for wildlife range improvement. Despite Kotok's advice and the controversy controlled burning research would generate, Dean Walter Mulford of the School of Forestry told Biswell to "develop sound research, let the chips fall where they may, and not argue with people but rather listen to them and present facts."[4] He followed that advice throughout a tumultuous and influential career at the university that would last twenty-six years.

Biswell first taught range management courses. He soon began studying the use of fire in Sierra foothill woodlands to improve ranges for livestock grazing, along with a 65,000-acre project burning chaparral shrublands in Lake County, north of San Francisco for game habitat improvement. The fact that he was scientifically prying open a door that had been slammed shut in California for several decades did not go unnoticed. Professor Robert F. Griggs wrote him in October 1949 from the University of Pittsburgh congratulating him on his first published reports of the effects of brush burning that increased surface flow in nearby streams: "I often wonder why with all the controversy indulged in past years nobody undertook careful detailed studies such as you are carrying forward. You are much to be congratulated on the way you are carrying forward."[5]

In the early 1950s he developed a method of up-slope burning in chaparral without building firelines. South-facing slopes were ignited at the bottom of steep slopes in the spring; the fires would go out when they reached the wetter north-facing vegetation at the ridgetops. Biswell would later recall that "the California Department of Fish and Game liked it so well that they carried on for another ten years. The burning was then stopped because of money shortages and largely forgotten. The method was rediscovered by the Forest Service in the early seventies and is now gaining in popularity."[6]

He started burning in ponderosa pine in 1951 on the Teaford For-

Dr. Harold Biswell conducting a demonstration prescribed burn. Photo by Michael Yost.

est in the Sierra Nevada foothills and in the fall of that year at Hoberg's Resort in Lake County. Ponderosa pine was the most widespread forest type in western North America, with about 36 million acres from British Columbia down to Mexico. California had about four million acres of ponderosa pine forest. Biswell's interest in burning in western pine forests had been piqued while he was still in Georgia, when he read a 1943 *Journal of Forestry* article written by Harold Weaver, titled "Fire as an Ecological Factor in the Ponderosa Pine Region of the Pacific Slope."

HAROLD WEAVER

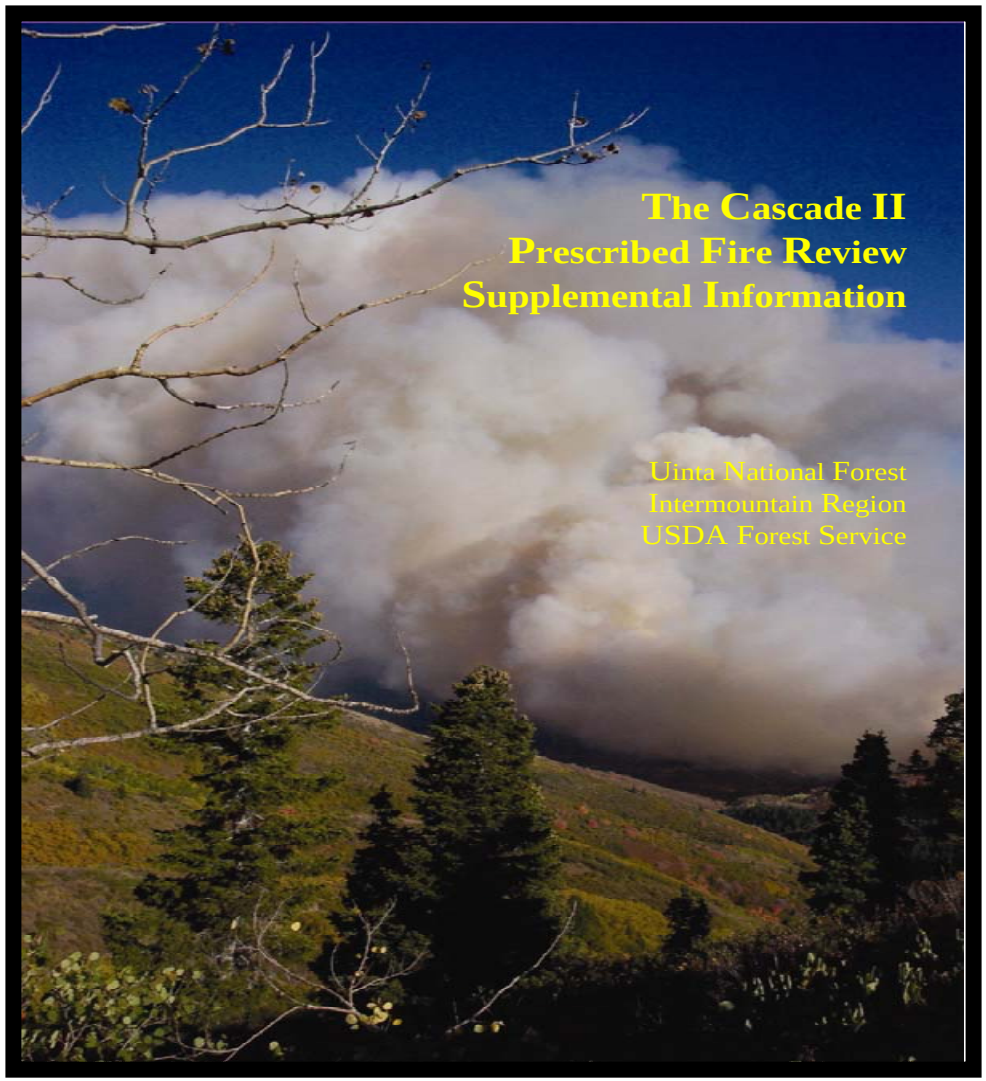
In 1943 forester Harold Weaver had been working for fifteen years on the Indian reservations of the Pacific coast. Born in Sumter, Oregon, he graduated with honors as a forester from Oregon State College, Corvallis, in 1928 and that same year began a career with

More fire on the land!

- Kilgore: “We must find ways to reward risk taking…”
- Agee: “Emphasizing *just* fuel reduction is a recipe for disaster.”
- Mutch: the “double standard…”

33,000,000 Acres
90% Fire Dependent

Noble/Courageous



Holding Boss, Cerro Grande Prescribed Fire

- “Coming back here reopens the book on the darkest chapter in my life. But if my participation here today helps prevent any of you from going down the road we did…it will all be worthwhile.”

Al King, Opening remarks Stand One of the Cerro Grande Staff Ride, May 2004

Safety Degrades

"Safety degrades; it, too has a half-life. Why can't we take for granted whatever level of safety that has been attained? Because unless safety is continuously reaccomplished, it will decline…"

Aaron Wildavsky, *Searching for Safety*

Broad Objectives: Part 1-3

- Fresh ideas
- Part I: Disasters
- Part II: High reliability organizing
- Part III: Roll up our sleeves

Part I: Disasters

- 1. DEFINE ACCIDENT & DISASTER.
- 2. LIST TURNER'S STAGES OF A DISASTER.
- 3 GERALDTON PRESCRIBED BURN
- 4   CASE STUDIES

Accident

- An unwanted event caused by people's failure to apply existing precautions.

Disaster

- A threatening event caused by the collapse of what we thought were adequate precautions.

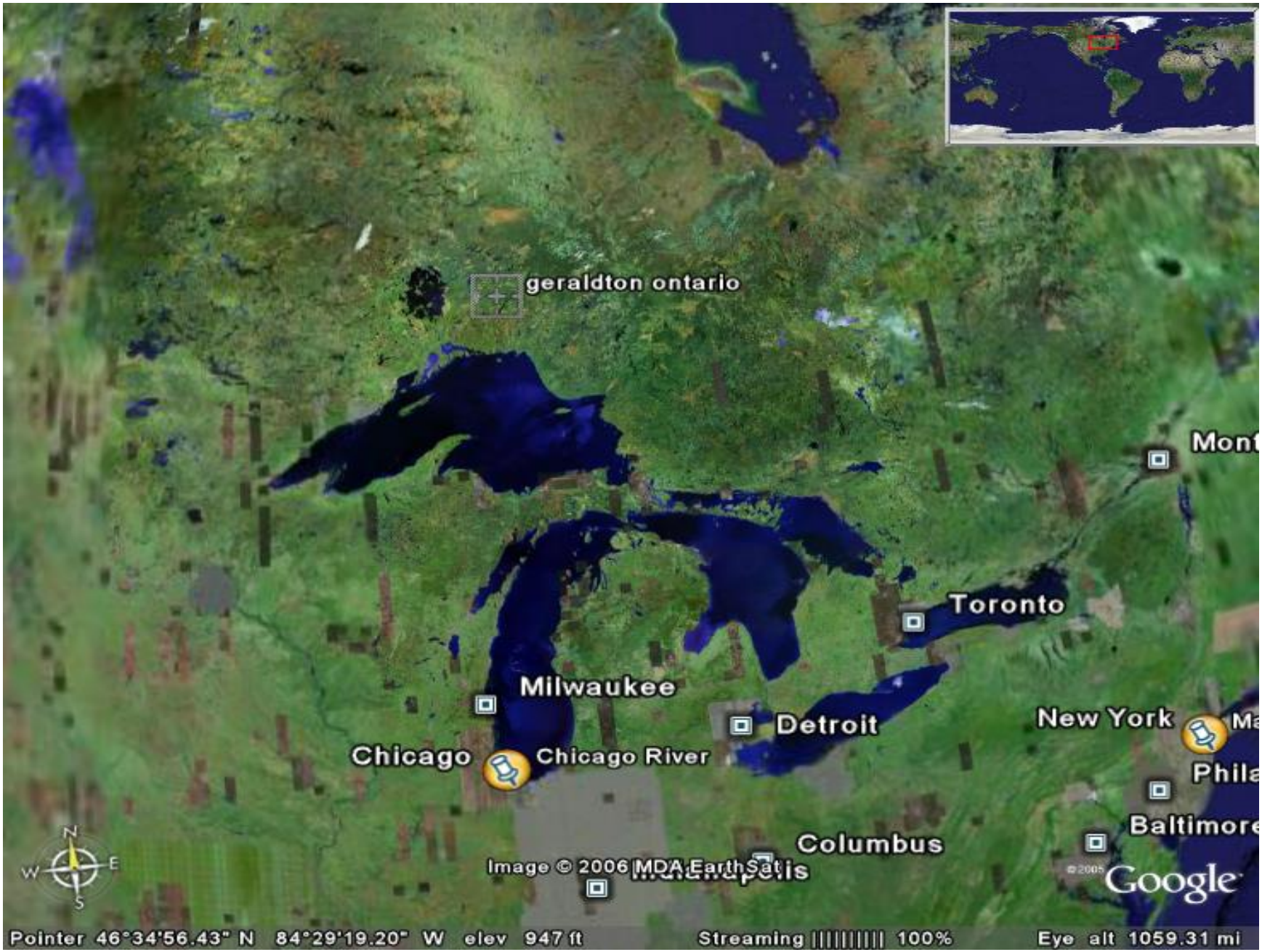
Turner's Stages of a Disaster

- 1. Predisaster starting point
- 2. Incubation period
- 3. Undesirable event
- 4. Onset
- 5. Suppression, rescue and salvage
- 6. Full cultural readjustment

Surprise!

Incubation Phase

- Unnoticed “little” events
- Culture of deviance
- Normalization of error
- Nature of the workplace changes


geraldton ontario
Toronto
Milwaukee
Detroit
New York
Chicago
Chicago River
Columbus
Baltimore
Image © 2006 MDA EarthSat
Google
Pointer 46°34'56.43" N 84°29'19.20" W elev 947 ft
Streaming 100%
Eye alt 1059.31 mi

Ontario Logging

Geraldton PB-3
August 22, 1979

- Pop: 2400
- Harvest: Clearcut 1978
- Temp: 73 degrees
- R.H.: 66%
- Wind: South 5-7 mph
- Size: 148 Acres
- Topography: Flat to rolling

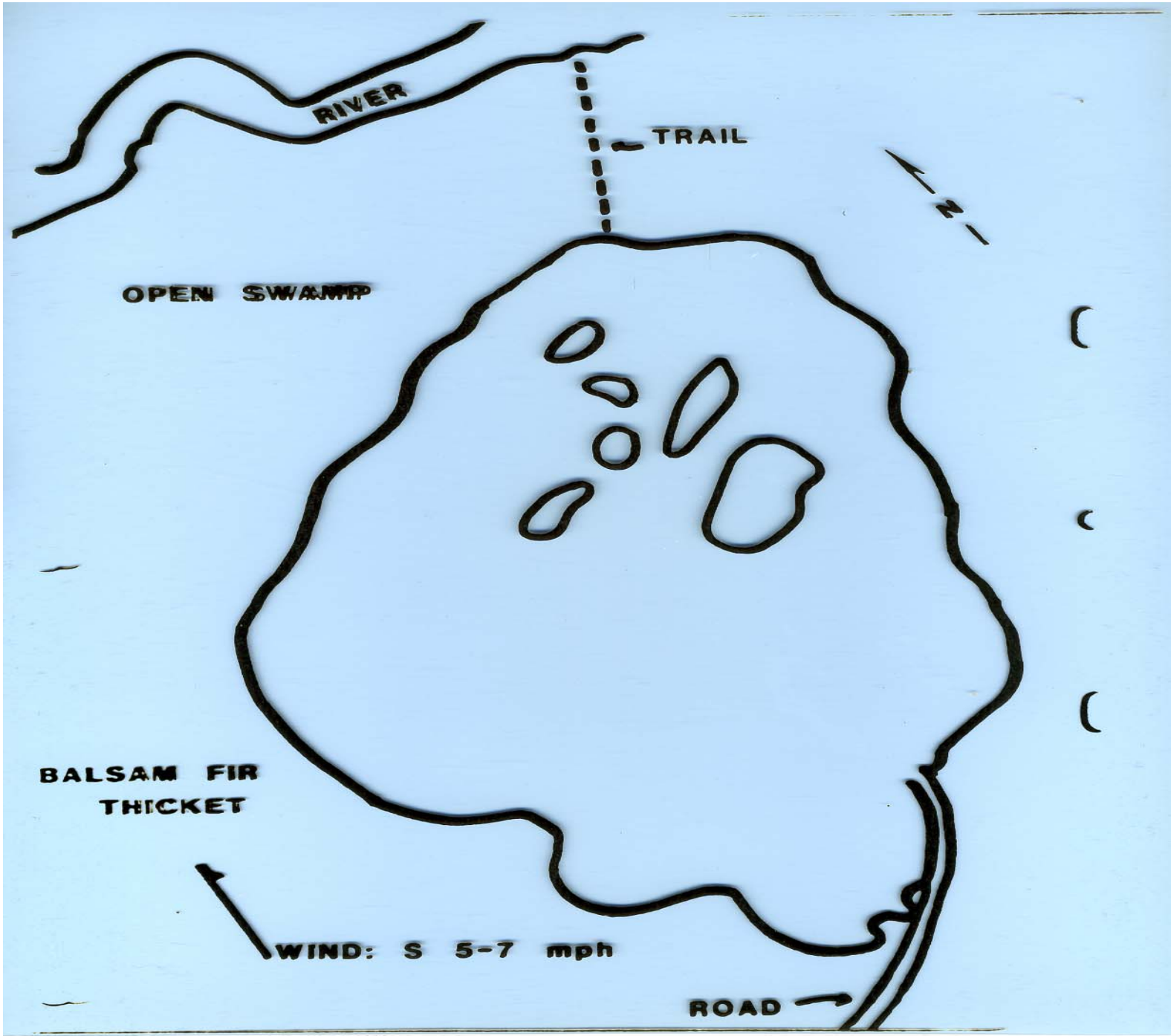
Crew Background

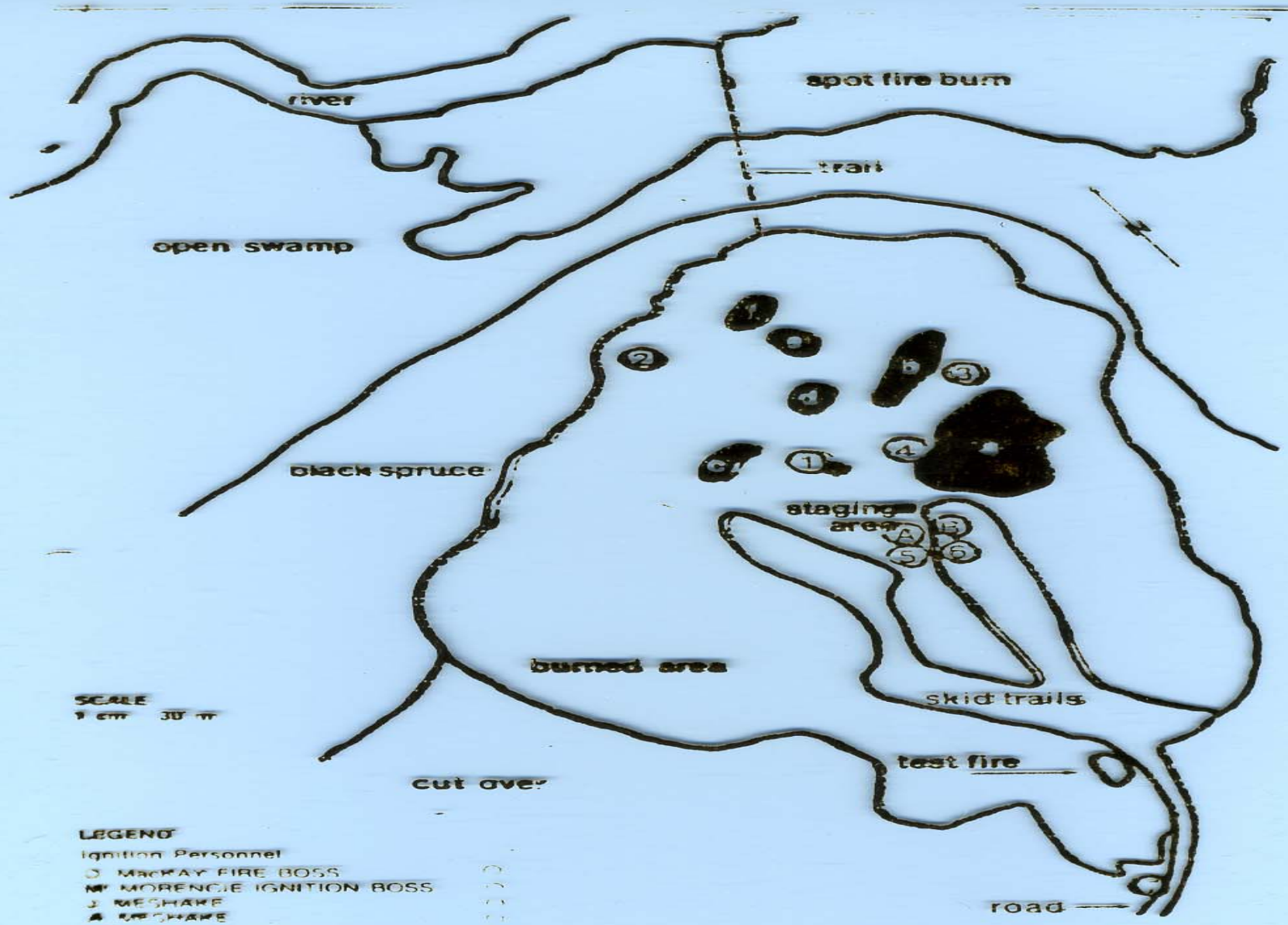
Policies in place

Good track record

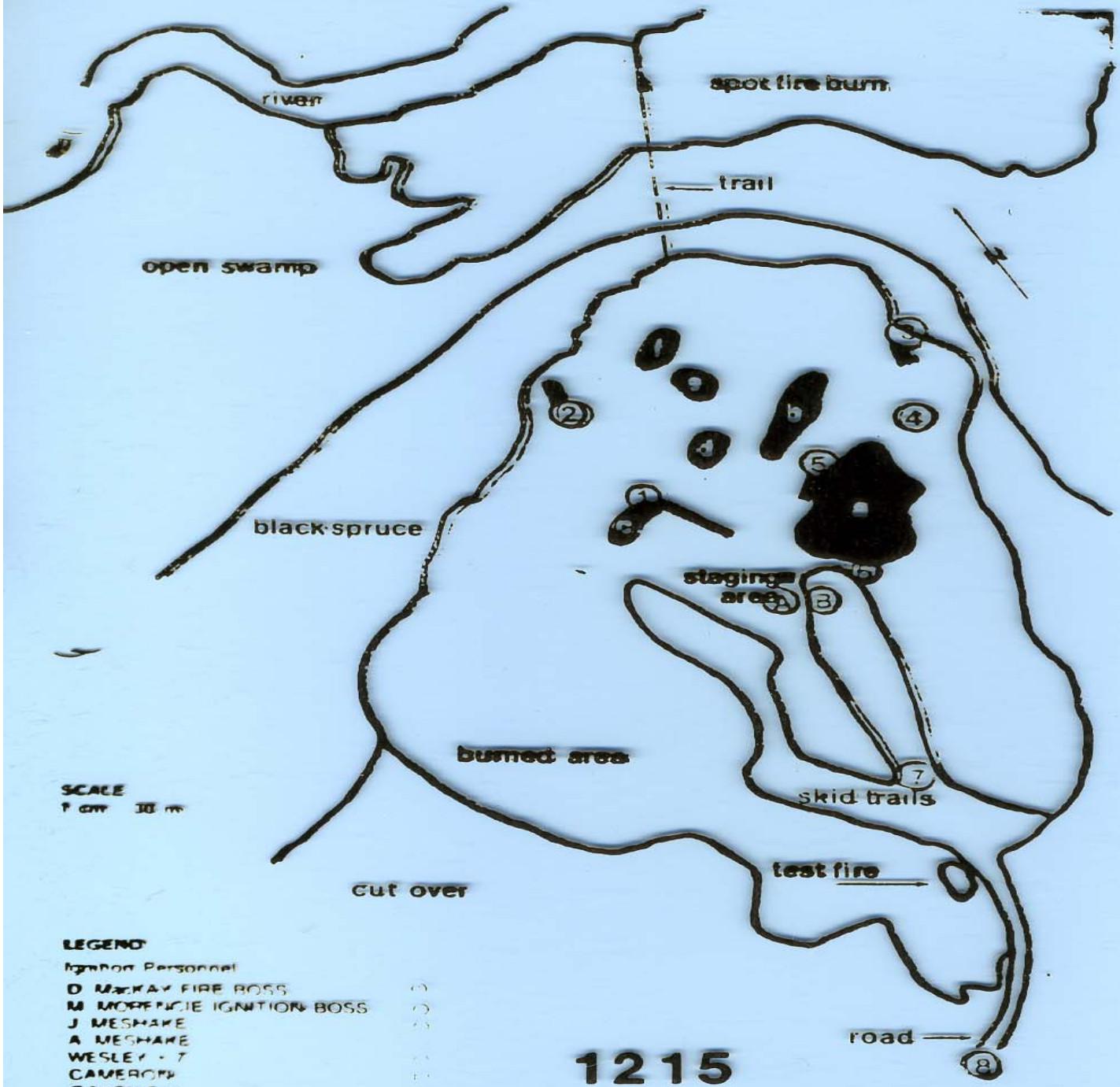
Record fire season

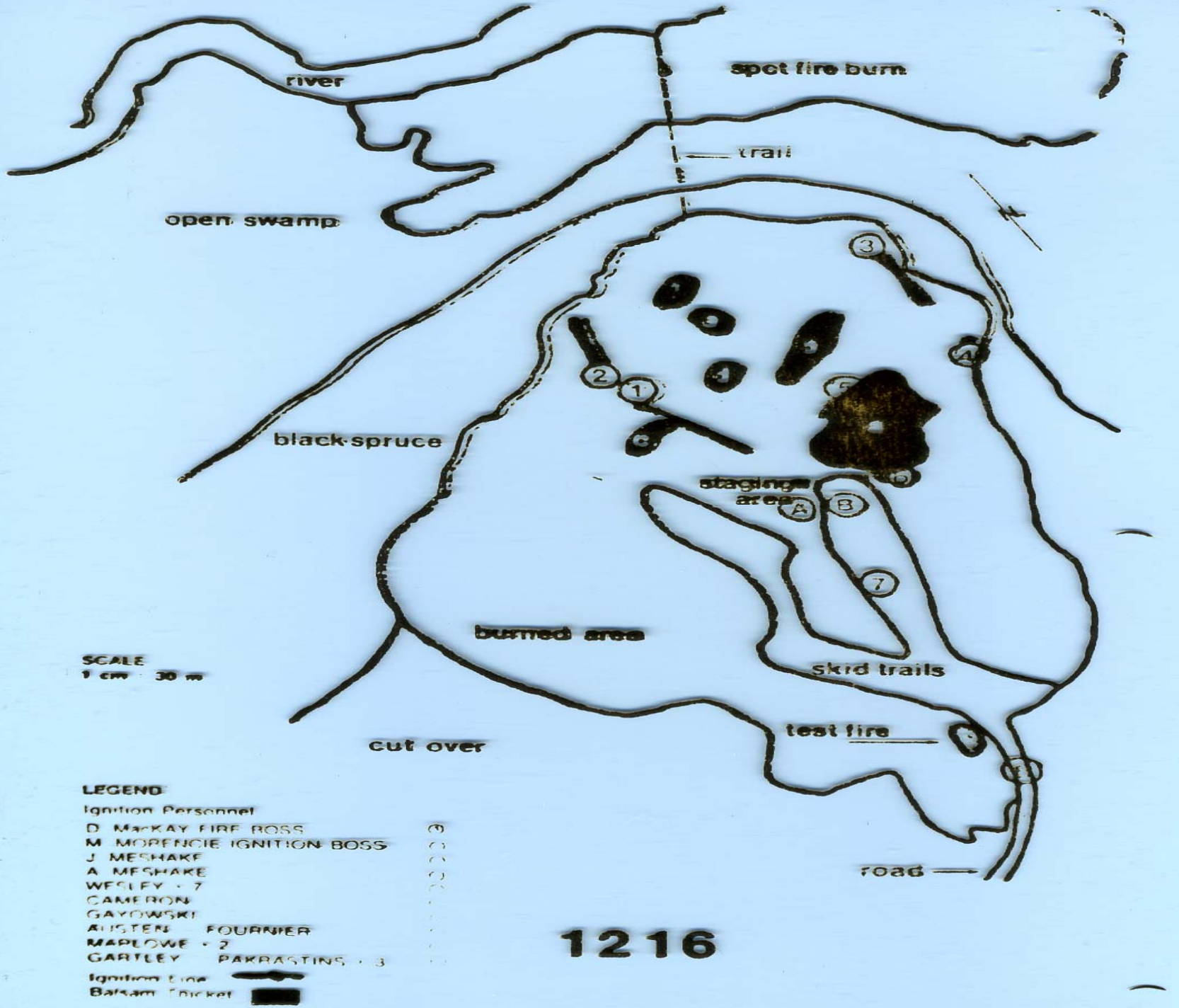
Trees coming

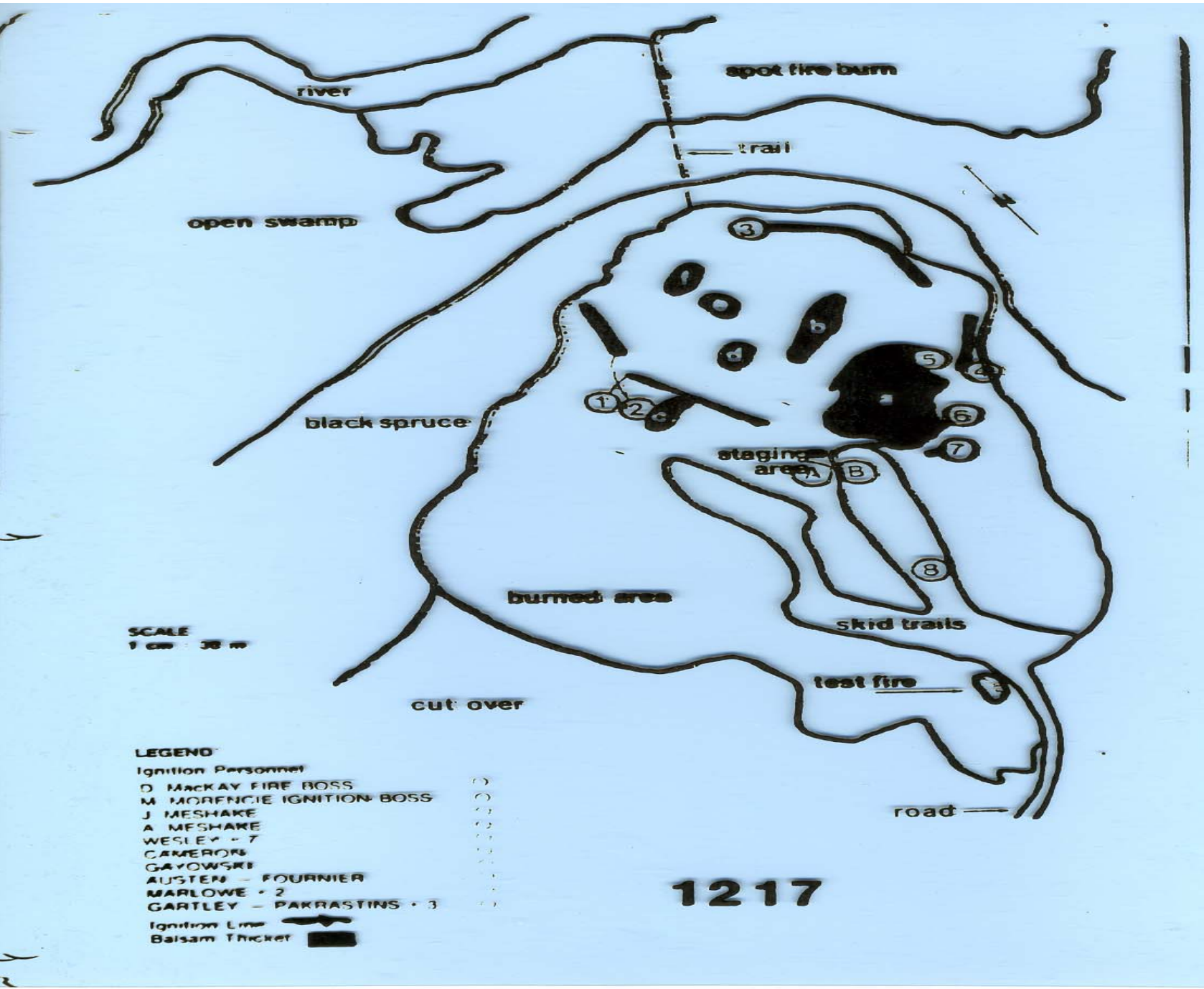

RIVER
TRAIL
OPEN SWAMP
BALSAM FIR
THICKET
WIND: S 5-7 mph
ROAD

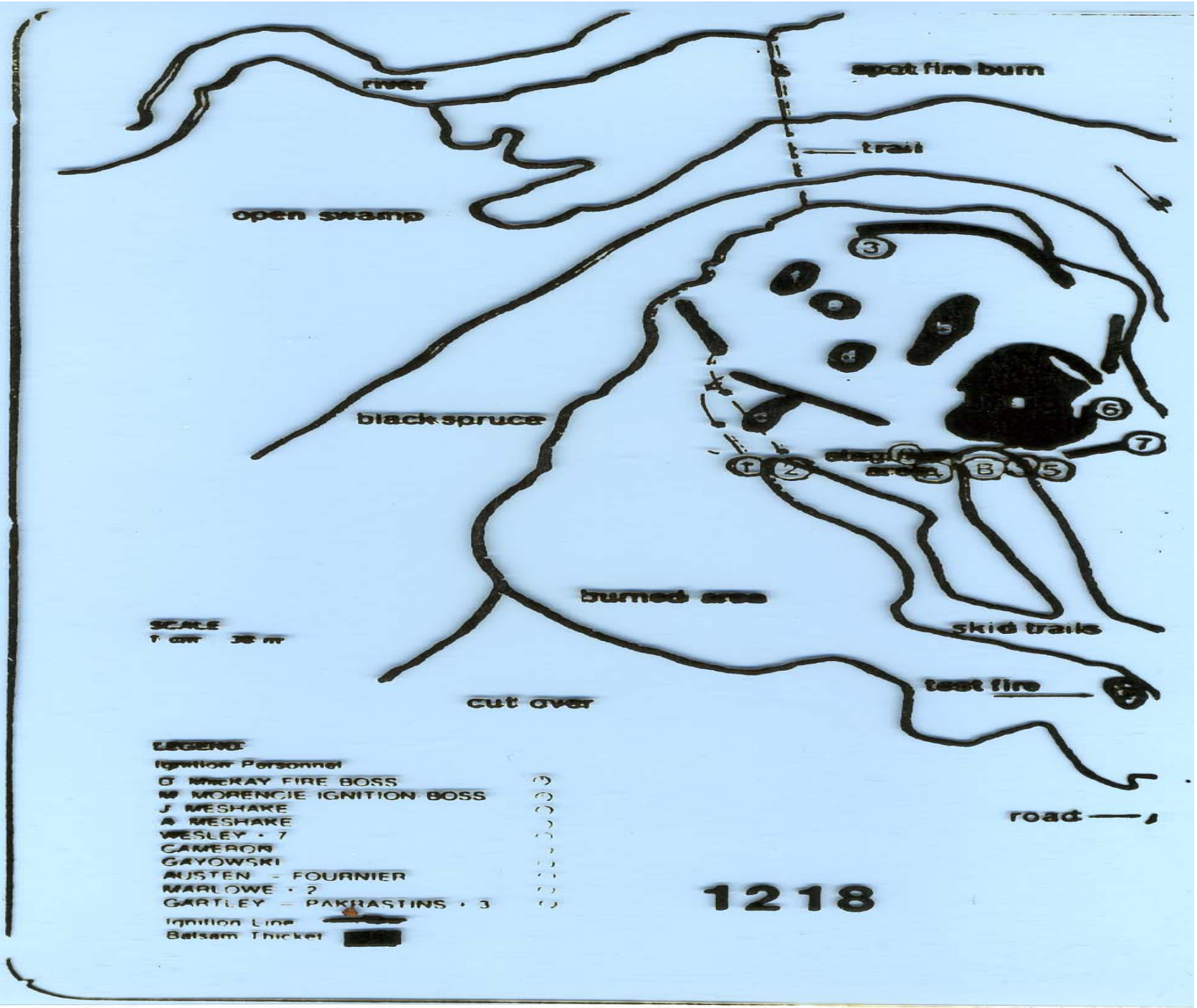

river
spot fire burn
trail
open swamp
black spruce
staging area
burned area
skid trails
test fire
cut over
road
SCALE
1 cm 30 m
LEGEND
Ignition Personnel
J. MacKAY FIRE BOSS
M. MORENCIE IGNITION BOSS
J. MESHAKE
A. MESHAKE
WESLEY - 7
CAMEPOP
GAYOWSKI
AUSTEN - FOURNIER
MARLOWE - 7
GARTLEY - PAPRASTINS - 3
Ignition Line
Ranger Mackay

1214


river
spot fire burn
trail
open swamp
black spruce
staging area
burned area
skid trails
test fire
cut over
road
SCALE
1 cm 100 m
LEGEND
Ignition Personnel
D MacKAY FIRE BOSS
M MOFFATTSCIE IGNITION BOSS
J MESHAKE
A MESHAKE
WESLEY - ?
CAMERON
1215


river
spot fire burn
trail
open swamp
black spruce
staging area
burned area
skid trails
test fire
cut over
road
SCALE
1 cm = 30 m
LEGEND
Ignition Personnel
D MacKAY FIRE BOSS
M MORENCIE IGNITION BOSS
J MESHAKE
A MESHAKE
WESLEY - 7
CAMERON
GAYOWSKI
AUSTEN FOURNIER
MAPLOWE - 2
GARTLEY PAKRASTINS - 3
Ignition Line
Balsam Thicket
1216


river
spot fire burn
trail
open swamp
black spruce
staging area
A
B
burned area
skid trails
test fire
cut over
road
SCALE
1 cm = 30 m
LEGEND
Ignition Personnel
D MacKAY FIRE BOSS
M MORENCIE IGNITION BOSS
J MESHAKE
A MESHAKE
WESLEY - 7
CAMERON
GAYOWSKI
AUSTEN - FOURNIER
MARLOWE - 2
GARTLEY - PAKRASTINS - 3
Ignition Line
Balsam Thicket
1217


river
spot fire burn
trail
open swamp
black spruce
burned area
skid trails
test fire
cut over
road
SCALE
1 cm 25 m
LEGEND
Ignition Personnel
D MacKAY FIRE BOSS
M MORENCIE IGNITION BOSS
J MESHAKE
A MESHAKE
WESLEY - 7
CAMERON
GAYOWSKI
AUSTEN - FOURNIER
MARLOWE - 2
GARTLEY - PAKUASTINS - 3
Ignition Line
Balsam Thicket
1218


trail
open swamp
black spruce
area
burned area
skid trails
test fire
cut over
road
SCALE
1 cm 30 m
Possible path of Wesley
Area of fire at the time he emerged
Final position of young people

1221

Investigation Report

- ✓Time running out
- ✓Incoming weather
- ✓Sense of accomplishment
- ✓Ignition crews not briefed
- ✓Ignition patterns fragmented
- ✓Over-confidence
- ✓Test fire
- ✓Seven inexperienced people

Geraldton Cultural Readjustment

Case Studies

Glover Ridge Wildlife Burn, 1974

Case Studies

Anderson Creek, Boise NF

Case Studies

Old Faithful Crown Fire, Sept. 7, 1988

Accident or Disaster?

Deep Survival?

Incubation Phase!

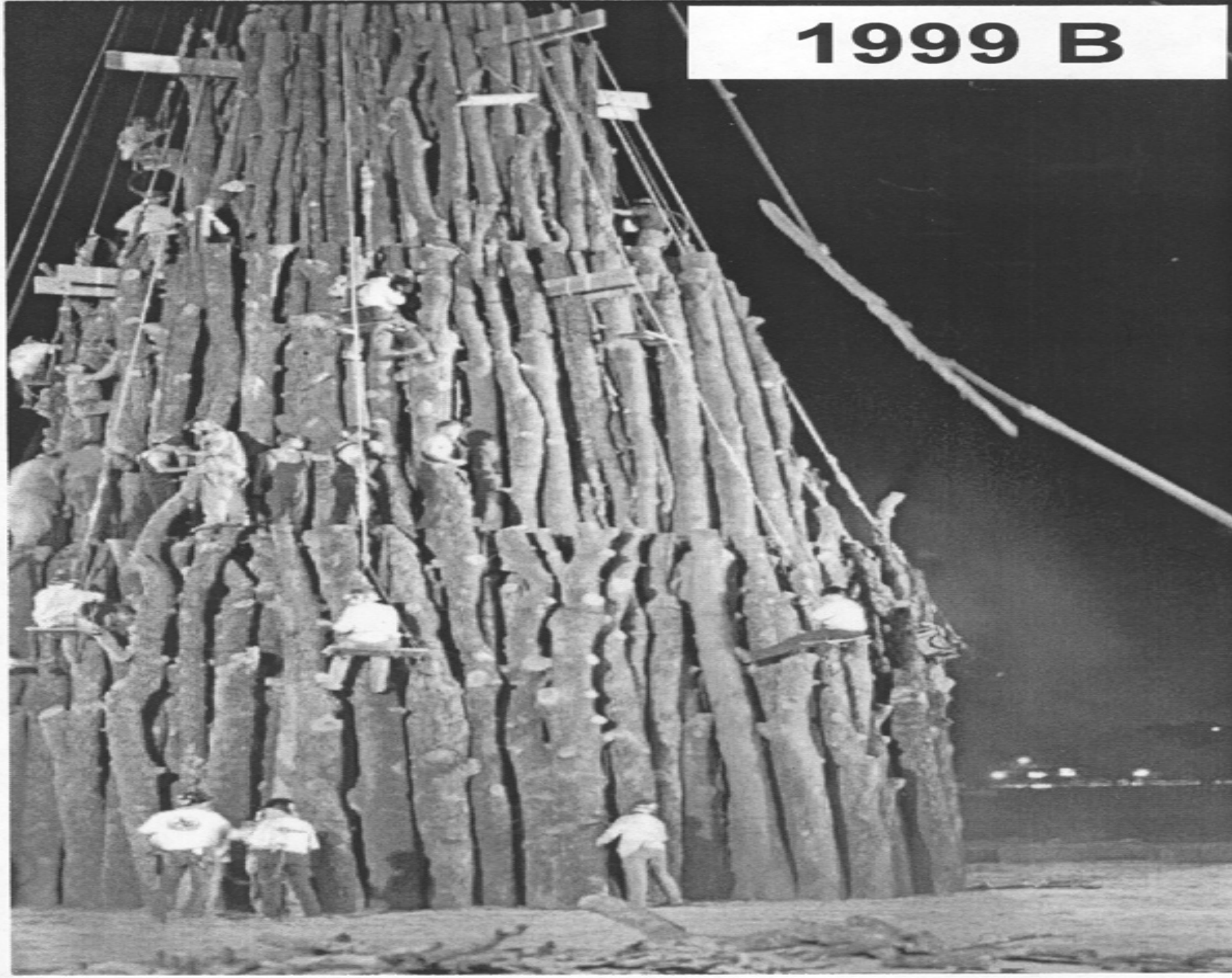

1928


1943


1958


1978


1984
GO AGGIES
AGGIE BONFIRE
1984


1999 B

From Final Report, “Special Commission on the 1999 Texas A&M Bonfire

- “…the central message is clear. The collapse was about physical failures driven by organizational failures, the origins of which span decades…No single factor caused the collapse…”